We claim:

1. An apparatus, comprising:

a tubular structure of biocompatible material;

a first passive sensor element imbedded within said tubular structure, wherein said first passive sensor element produces a first signal that is a function of liquid pressure within said tubular structure; and

a second passive sensor element imbedded within said tubular structure at a distance from said first passive sensor element, wherein said second passive sensor element produces a second signal that is a function of liquid pressure within said tubular structure.

2. The apparatus of claim 1, further comprising means for collecting and analyzing said first signal and said second signal to determine the location or extent of an occlusion within or near said tubular structure.

3. The apparatus of claim 1, wherein said biocompatible material is selected from the group consisting of expanded polytetrafluorethylene (ePTFE) and polyurethane.

4. The apparatus of claim 1, wherein said tubular structure comprises a single layer of said biocompatible material.

5. The apparatus of claim 1, wherein said first passive sensor element and said second passive sensor element each comprise a capacitive element, C, and an inductive element, L, that forms an LC circuit, wherein said LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency, $\omega = 1/\sqrt{LC}$.

6. The apparatus of claim 5, wherein said first passive sensor element and said second passive sensor element each are designed such that said characteristic resonance frequency changes as said liquid pressure within said tubular structure changes.

7. The apparatus of claim 1, wherein said first passive sensor element comprises a first characteristic resonance frequency and said second passive sensor element comprises a second characteristic resonance frequency that is selected to be

different from said first characteristic resonance frequency to easily separate the signals during measurement.

8. The apparatus of claim 2, wherein said means for collecting and analyzing said first signal and said second signal comprises an external pickup coil adapted for detecting the resonance frequency of said first passive sensor element and said second passive sensor element.

9. The apparatus of claim 1, wherein said first passive sensor element and said second passive sensor element are each adapted to have a response time of less than 100 msec.

10. The apparatus of claim 1, wherein said first passive sensor element and said second passive sensor element are each adapted to have a resonance frequency within a range of 1 MHz to 200 MHz.

11. The apparatus of claim 1, wherein said tubular structure comprises at least two layers of biocompatible material.

12. The apparatus of claim 11, wherein said first passive sensor element and said second passive sensor element are integrated between layers of said at least two layers.

13. The apparatus of claim 1, wherein said first passive sensor element and said second passive sensor element are imbedded within said tubular structure.

14. The apparatus of claim 5, wherein said capacitive element comprises a cylindrical capacitor having plates with a spacing that is a function of said liquid pressure within said tubular structure.

15. The apparatus of claim 14, wherein said cylindrical capacitor comprises a split cylindrical capacitor.

16. The apparatus of claim 14, wherein said cylindrical capacitor comprises a dielectric fluid trapped within said cylindrical capacitor to produce a trapped volume that is adapted to increase the pressure sensitivity of said first passive sensor element and said second passive sensor element.

17. The apparatus of claim 5, wherein said inductive element comprises a coil that wraps around said tubular structure.

18. The apparatus of claim 5, wherein said inductive element comprises a coil placed on the top surface of said tubular structure, wherein said coil comprises an axis oriented to be perpendicular to axis of said tubular structure.

19. The apparatus of claim 1, wherein at least one of said first passive sensor element and said second passive sensor element comprises an optical pressure sensor element having an optical property that changes as a function of said liquid pressure within said tubular structure.

20. The apparatus of claim 19, wherein said optical pressure sensor element comprises a Fabry-Perot filter element having a mirror spacing that changes as a function of said liquid pressure within said tubular structure.

21. The apparatus of claim 19, further comprising a broadband light source adapted to illuminate said optical pressure sensor element and produce a return signal.

22. The apparatus of claim 21, further comprising a spectrometer adapted to measure said return signal to detect the operating wavelength of said filter.

23. The apparatus of claim 22, wherein said filter is designed such that said return signal is either a maximum or minimum at an operating wavelength of said filter.

24. The apparatus of claim 23, wherein said filter is designed to have an operating wavelength within a range from 600 nm and 1200 nm.

25. The apparatus of claim 21, further comprising a fluorescent material positioned and adapted to produce a fluorescent signal upon interaction with light from said broadband light source, wherein said fluorescent signal will interact with said filter.

26. A method, comprising:

providing a tubular structure of biocompatible material;

imbedding a first passive sensor element within said tubular structure, wherein said first passive sensor element is adapted to produce a first signal that is a function of liquid pressure within said tubular structure; and

imbedding a second passive sensor element within said tubular structure at a distance from said first passive sensor element, wherein said second passive sensor element is adapted to produce a second signal that is a function of liquid pressure within said tubular structure.

27. The method of claim 26, further comprising providing means for collecting and analyzing said first signal and said second signal to determine the location or extent of an occlusion within or near said tubular structure.

28. The method of claim 26, wherein said first passive sensor element and said second passive sensor element each comprise a capacitive element, *C*, and an

inductive element, L, that forms an LC circuit, wherein said LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency, $\omega = 1/\sqrt{LC}$.

29. The method of claim 28, wherein said first passive sensor element and said second passive sensor element each are designed such that said characteristic resonance frequency changes as the blood pressure within said tubular structure changes.

30. An method for determining the location or extent of an occlusion within or near a tubular structure, wherein said a tubular structure comprises biocompatible material and includes a first passive sensor element imbedded within said tubular structure, wherein said first passive sensor element is adapted to produce a first signal that is a function of liquid pressure within said tubular structure, wherein said tubular structure further comprises a second passive sensor element imbedded within said tubular structure at a distance from said first passive sensor element, wherein said second passive sensor element is adapted to produce a second signal that is a function of liquid pressure within said tubular structure, the method comprising collecting and analyzing said first signal and said second signal to determine the location or extent of an occlusion within or near said tubular structure.

31. The method of claim 30, wherein the step of collecting and analyzing said first signal and said second signal is performed with an external pickup coil adapted for detecting the resonance frequency of said first passive sensor element and said second passive sensor element.